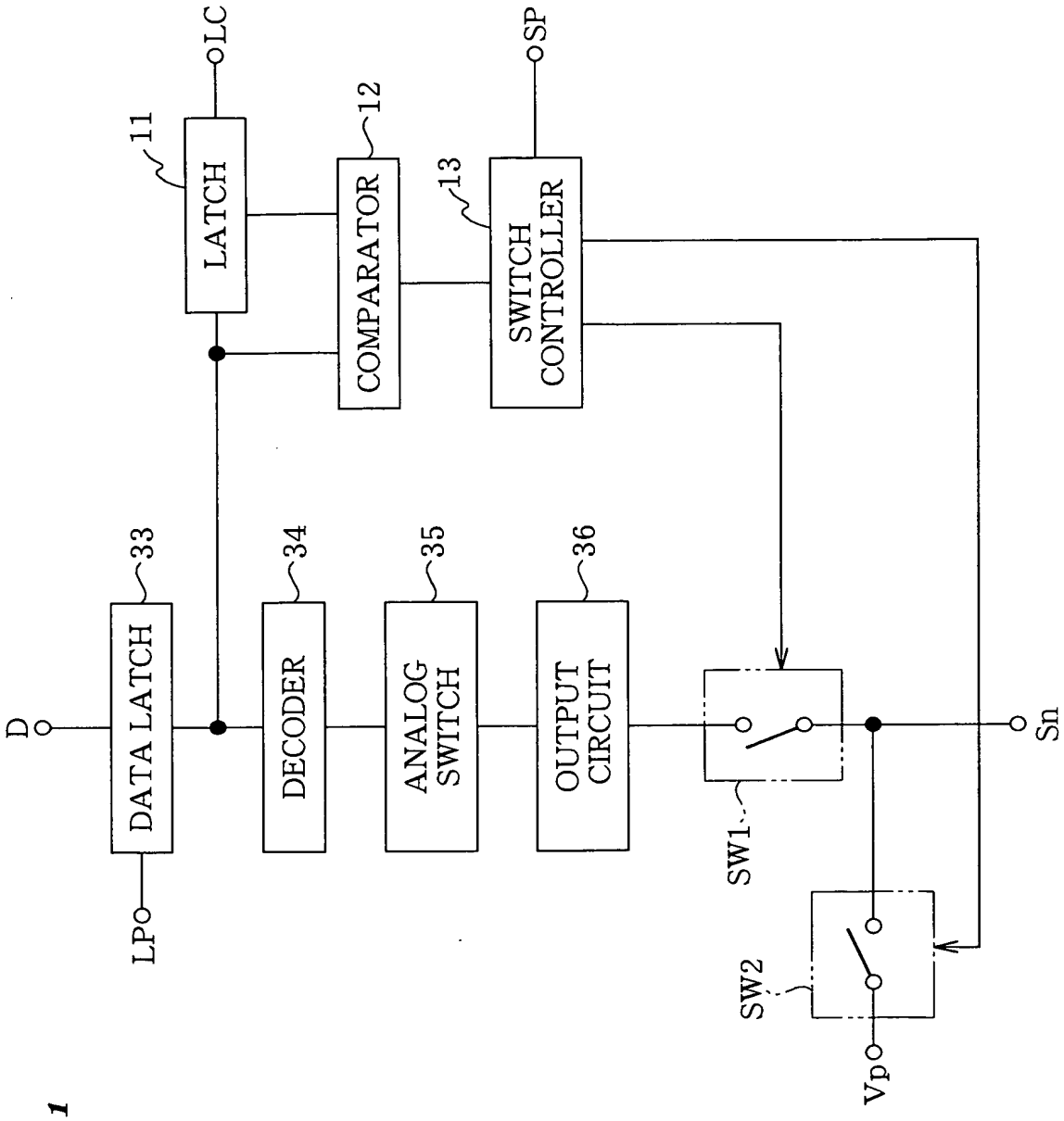

LC
SP
11
12
13
LATCH
COMPARATOR
SWITCH CONTROLLER
33
34
35
36
D
DATA LATCH
DECODER
ANALOG SWITCH
OUTPUT CIRCUIT
Sn
SW1
SW2
LP
Vp

FIG. 1

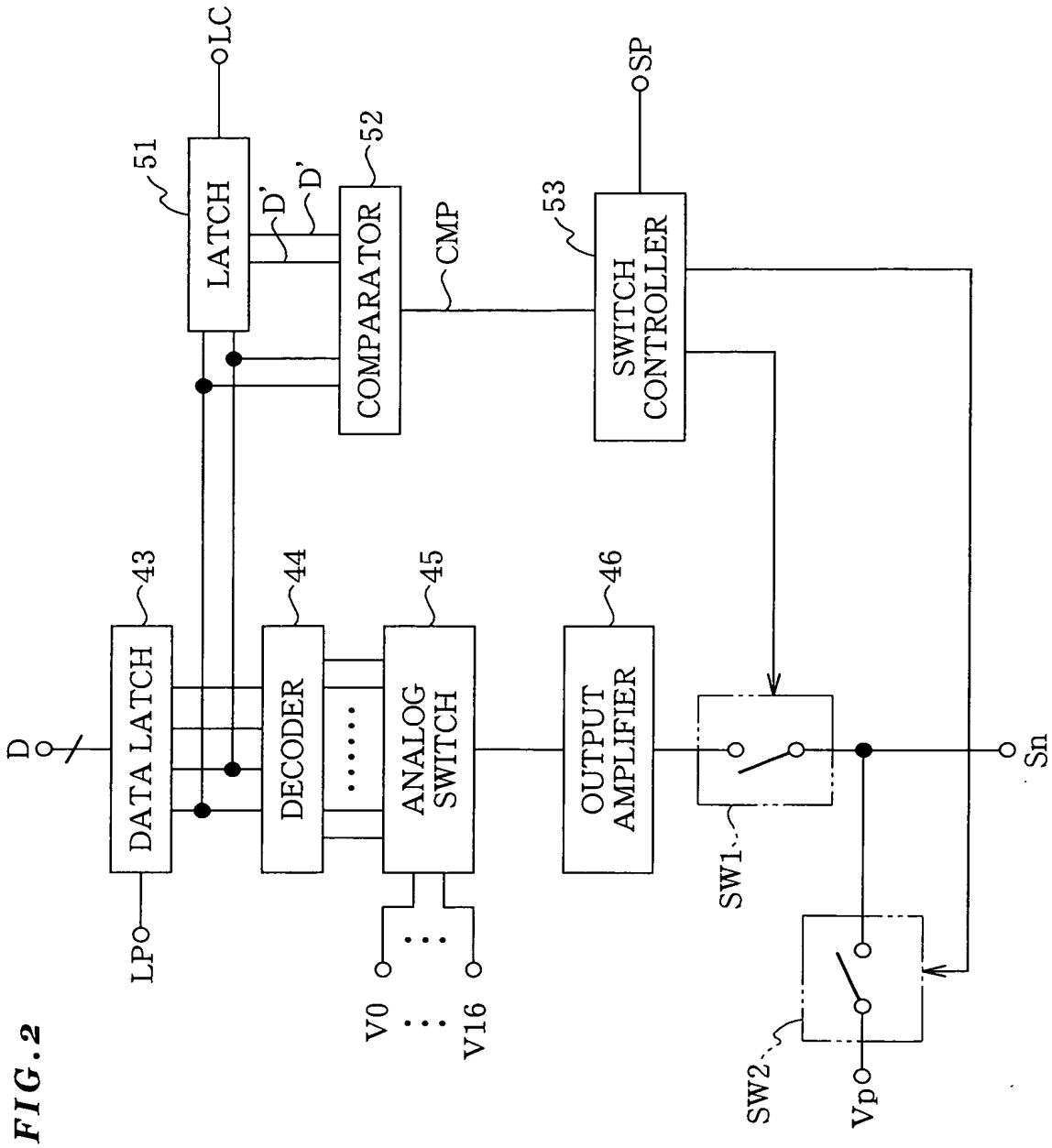
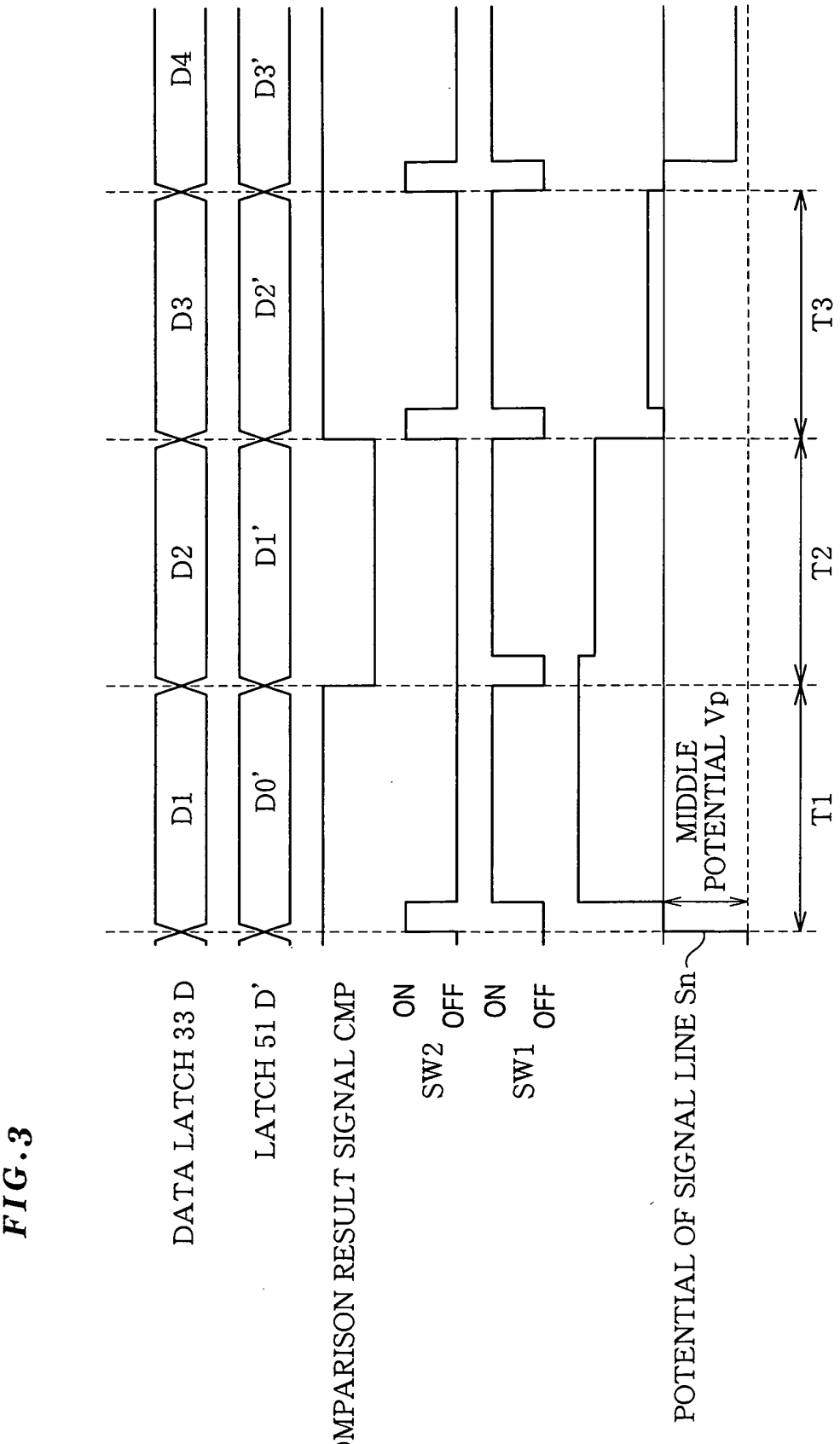

LC
SP
51
LATCH
D'
D'
52
COMPARATOR
CMP
53
SWITCH CONTROLLER
43
DATA LATCH
44
DECODER
45
ANALOG SWITCH
46
OUTPUT AMPLIFIER
D
LP
V0
V16
SW1
SW2
Vp
Sn

FIG. 2

FIG. 3


DATA LATCH 33 D
LATCH 51 D'
COMPARISON RESULT SIGNAL CMP
SW2
SW1
ON
OFF
ON
OFF
POTENTIAL OF SIGNAL LINE Sn
MIDDLE POTENTIAL Vp
D1
D2
D3
D4
D0'
D1'
D2'
D3'
T1
T2
T3

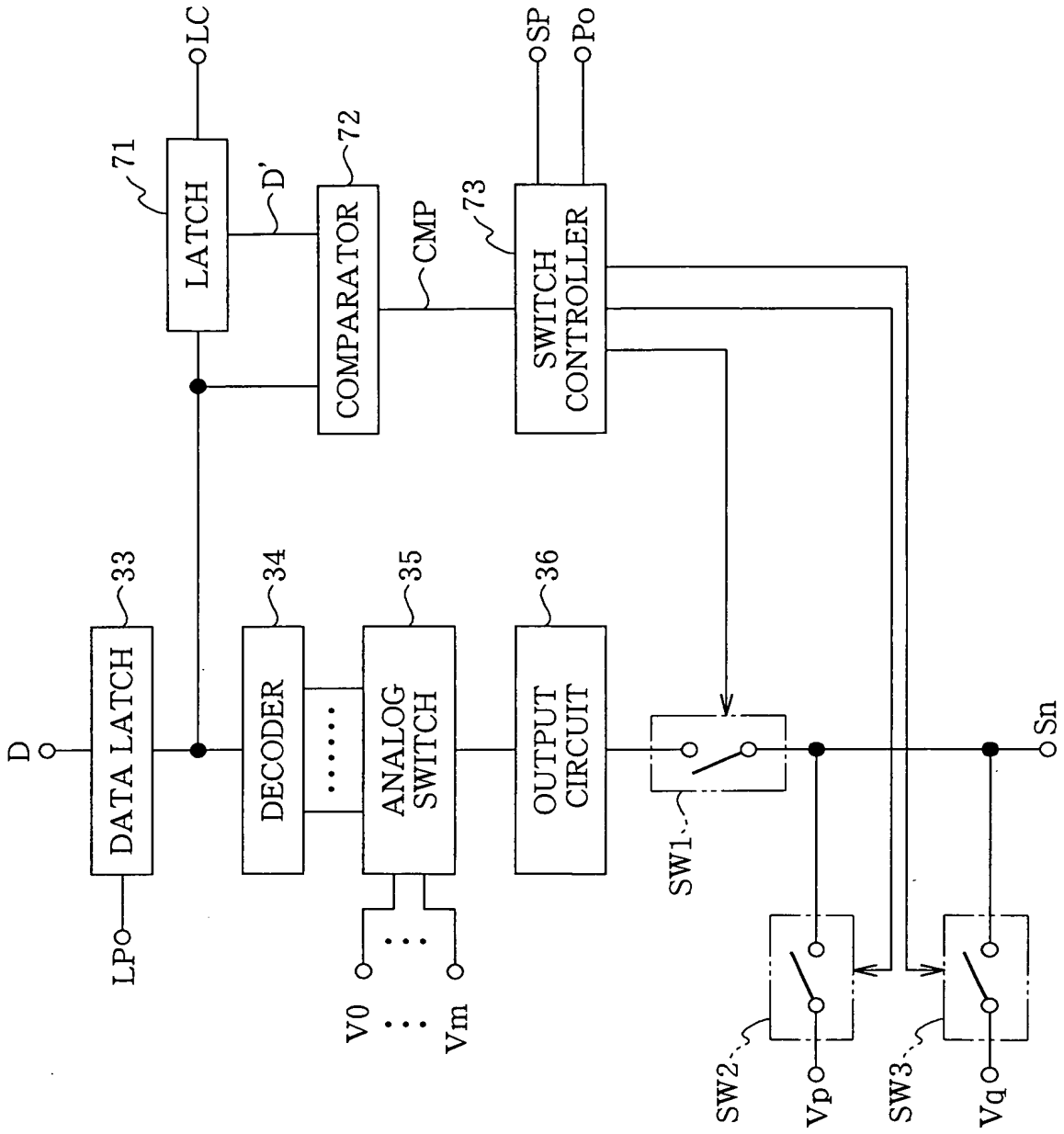
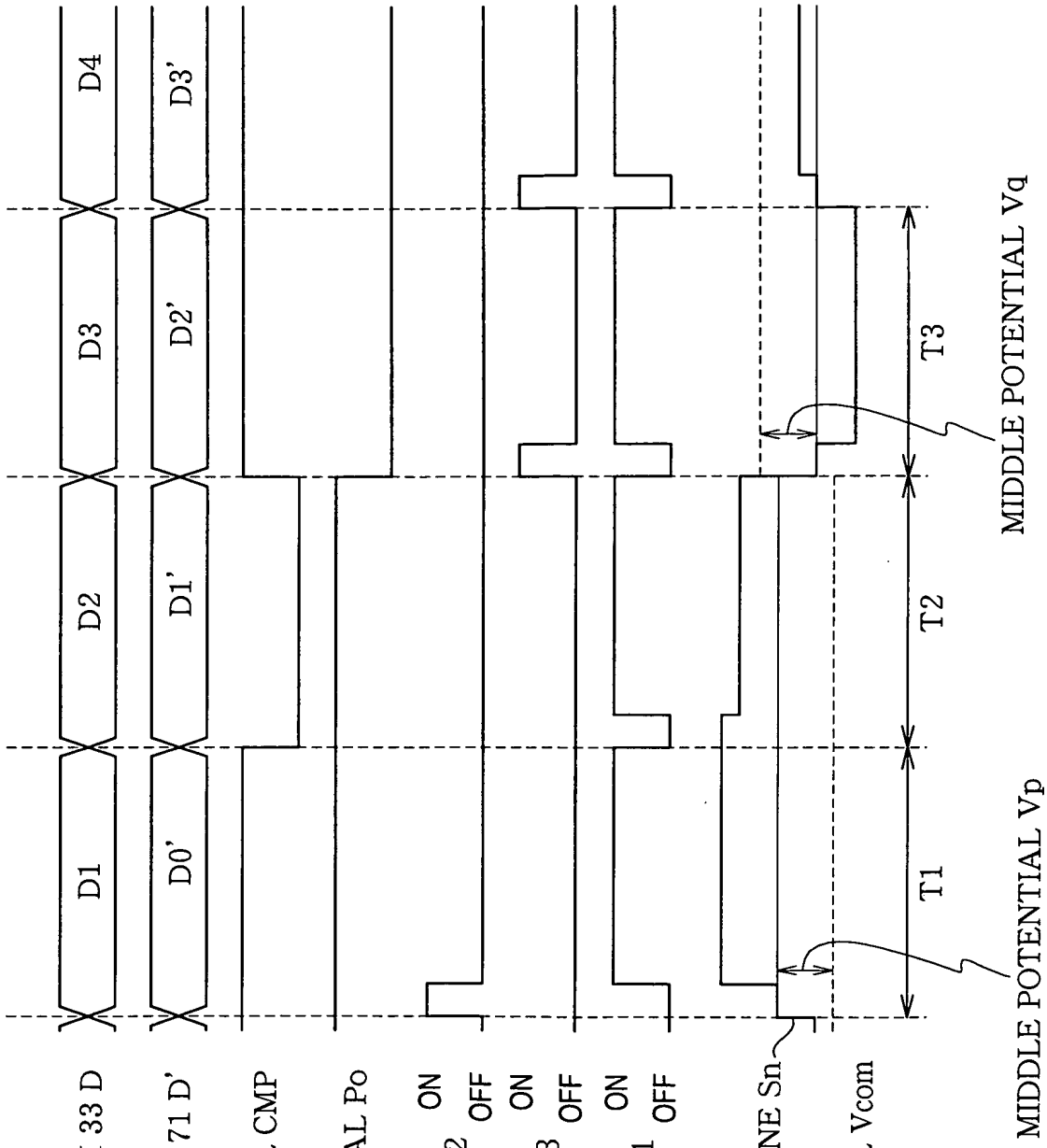

D
DATA LATCH
33
LP
DECODER
34
ANALOG SWITCH
35
V0
Vm
OUTPUT CIRCUIT
36
LATCH
71
LC
D'
COMPARATOR
72
CMP
SWITCH CONTROLLER
73
SP
Po
SW1
SW2
Vp
SW3
Vq
Sn

FIG.4

FIG.5


DATA LATCH 33 D
LATCH 71 D'
COMPARISON RESULT SIGNAL CMP
POLARITY INVERSION SIGNAL Po
SW2
SW3
SW1
ON
OFF
POTENTIAL OF SIGNAL LINE Sn
COMMON POTENTIAL Vcom
D0'
D1
D1'
D2
D2'
D3
D3'
D4
T1
T2
T3
MIDDLE POTENTIAL Vp
MIDDLE POTENTIAL Vq

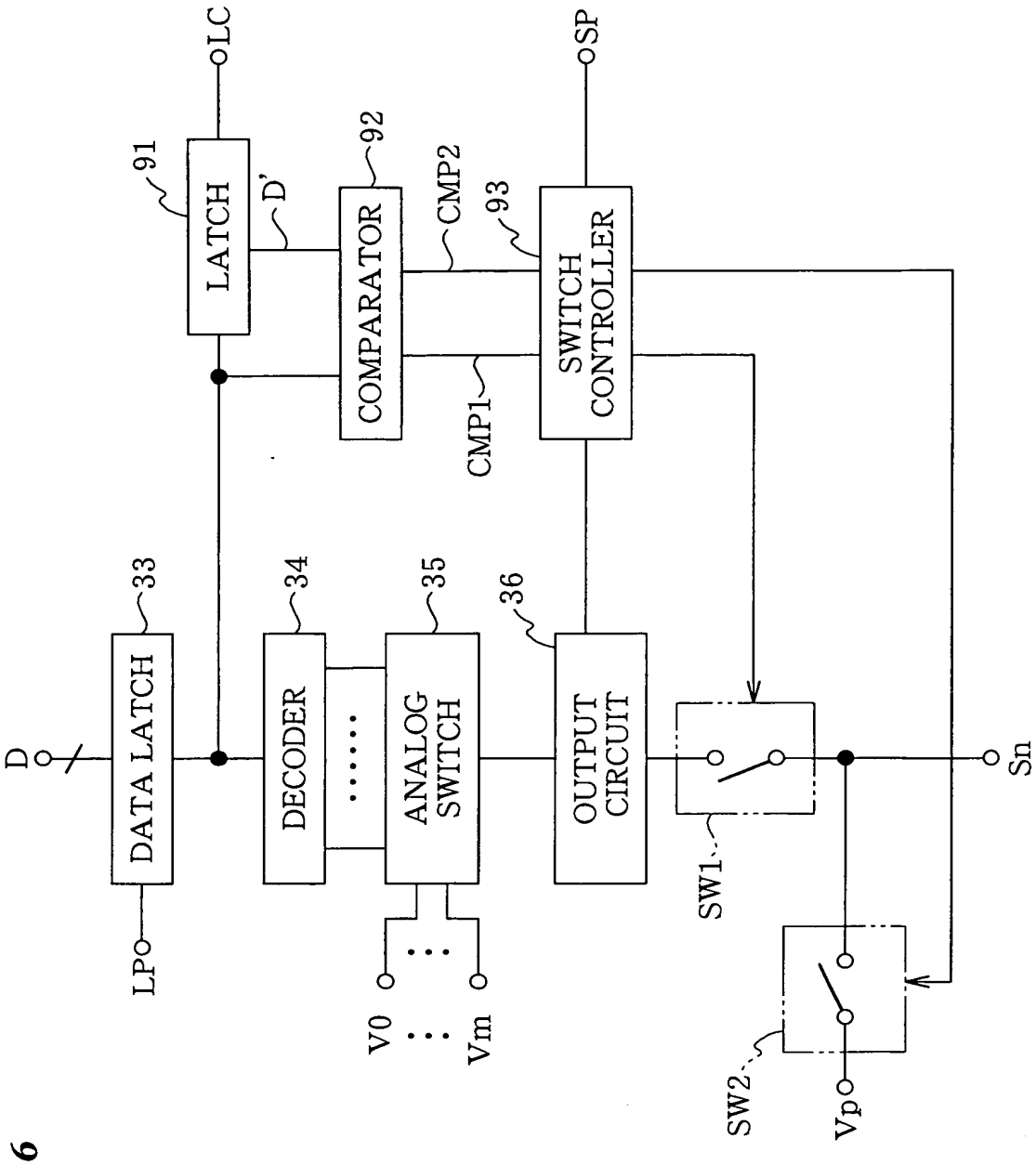

LC
SP
91
LATCH
D'
92
COMPARATOR
CMP2
93
SWITCH CONTROLLER
CMP1
D
33
DATA LATCH
34
DECODER
35
ANALOG SWITCH
36
OUTPUT CIRCUIT
SW1
Sn
LP
V0
Vm
SW2
Vp

FIG. 6

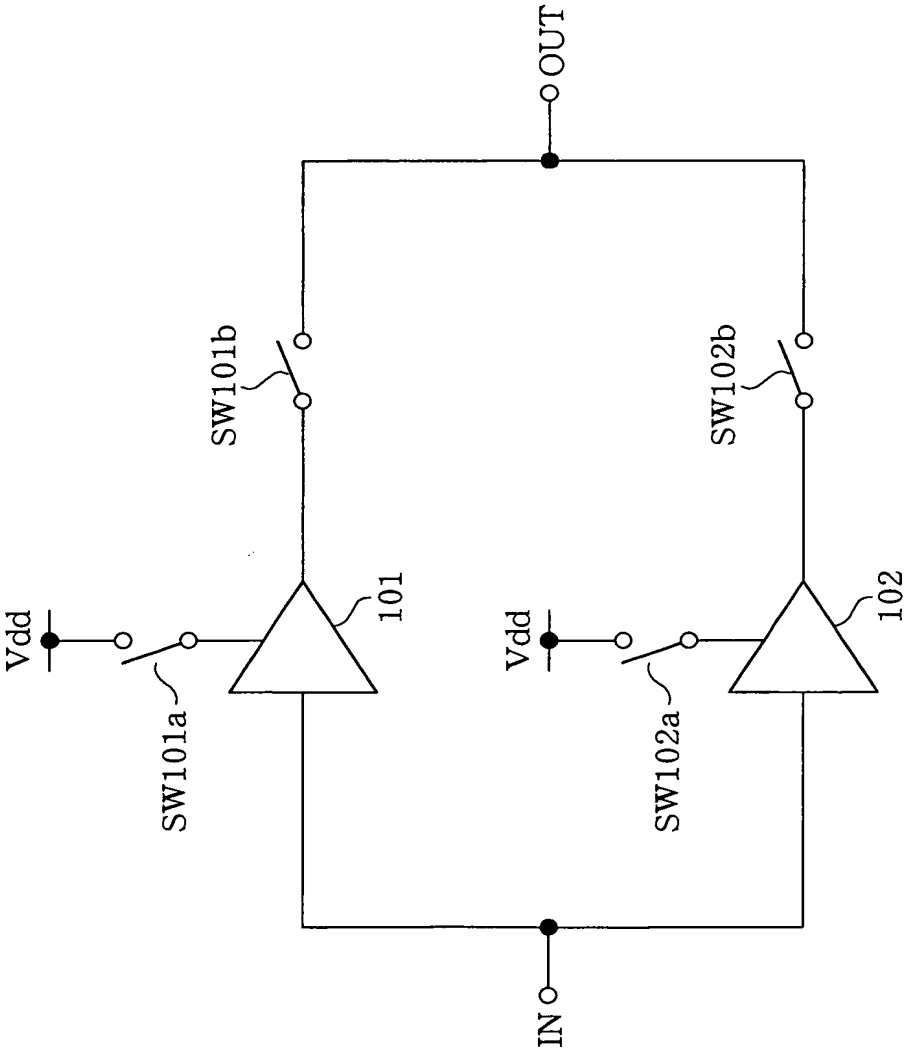
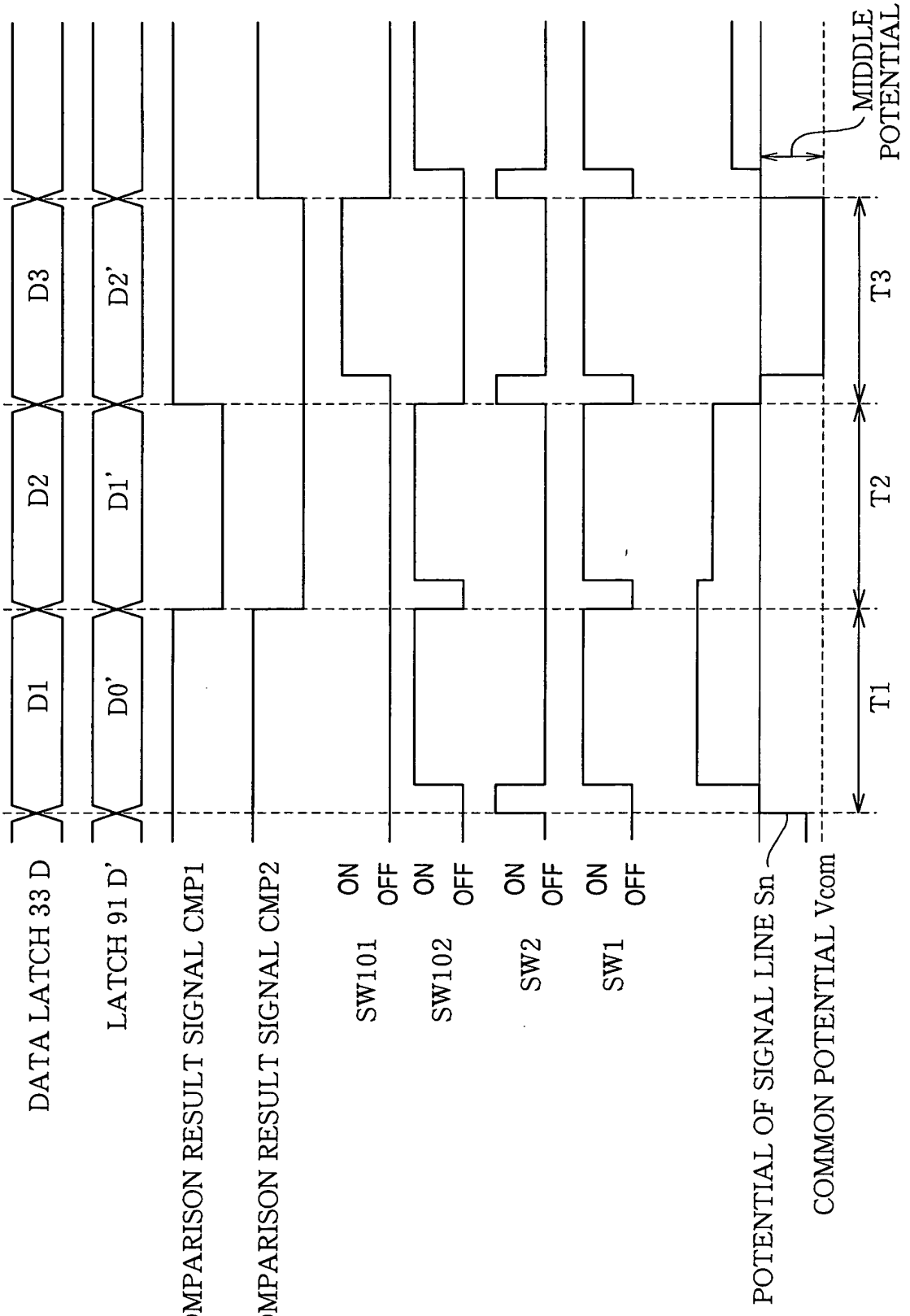


FIG. 7

FIG. 8


DATA LATCH 33 D
D1
D2
D3
LATCH 91 D'
D0'
D1'
D2'
COMPARISON RESULT SIGNAL CMP1
COMPARISON RESULT SIGNAL CMP2
SW101
ON
OFF
SW102
ON
OFF
SW2
ON
OFF
SW1
ON
OFF
POTENTIAL OF SIGNAL LINE Sn
COMMON POTENTIAL Vcom
MIDDLE POTENTIAL Vp
T1
T2
T3

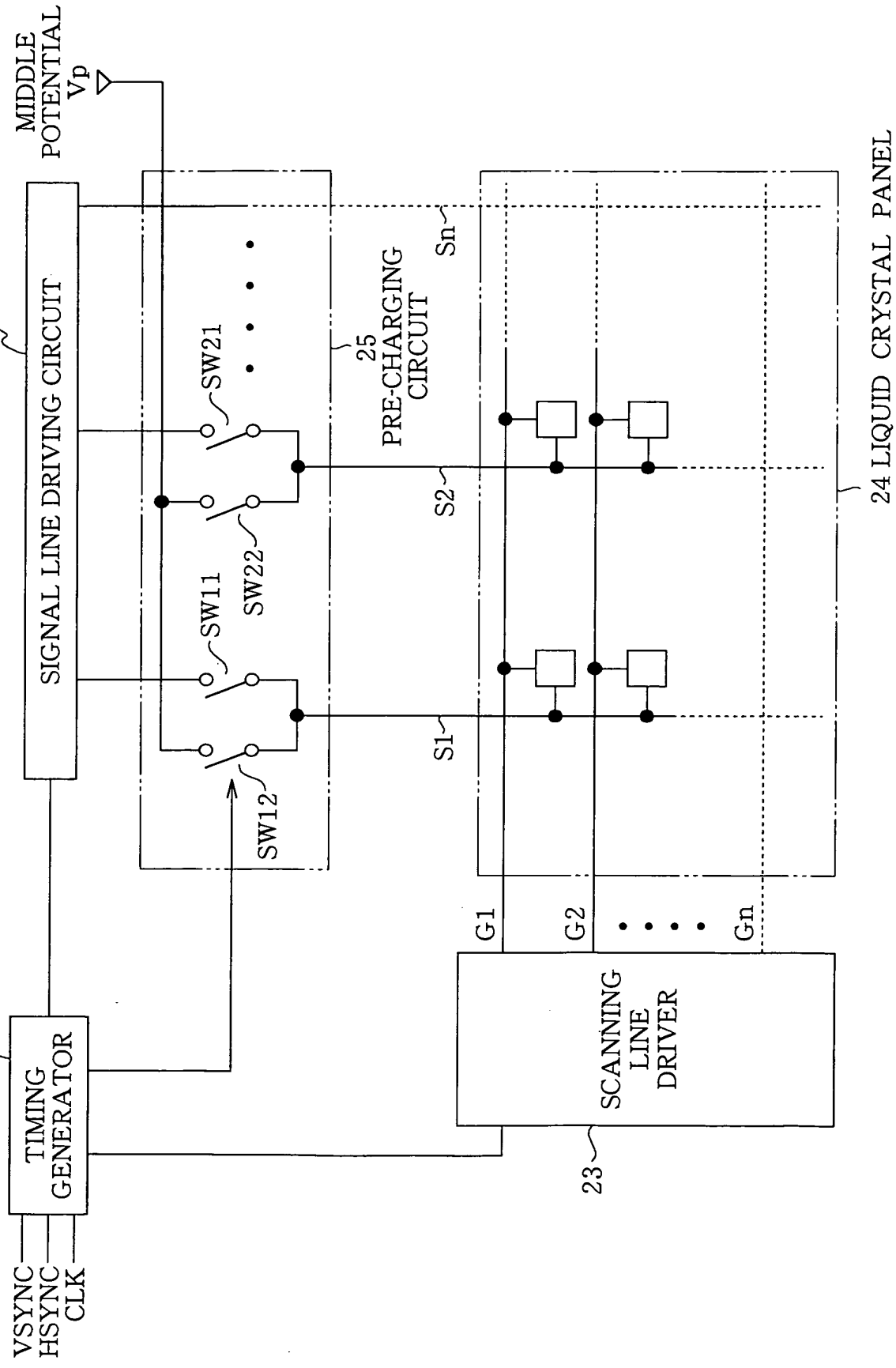

MIDDLE POTENTIAL Vp
22
SIGNAL LINE DRIVING CIRCUIT
SW21
SW11
SW22
SW12
25
PRE-CHARGING CIRCUIT
Sn
S2
S1
24 LIQUID CRYSTAL PANEL
G1
G2
Gn
SCANNING LINE DRIVER
23
21
TIMING GENERATOR
VSYNC
HSYNC
CLK

FIG. 9

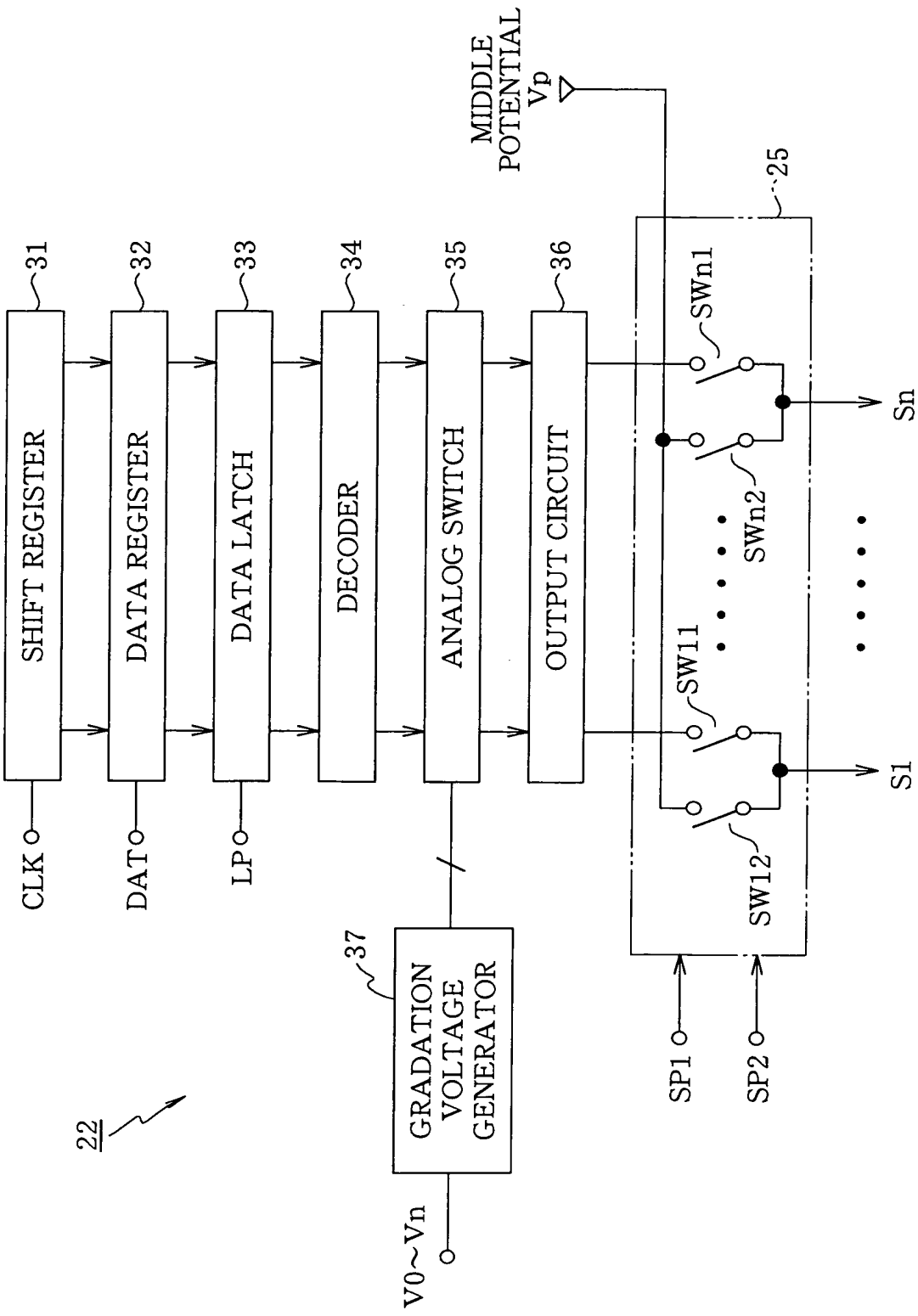

22
SHIFT REGISTER
31
DATA REGISTER
32
DATA LATCH
33
DECODER
34
ANALOG SWITCH
35
OUTPUT CIRCUIT
36
GRADATION VOLTAGE GENERATOR
37
MIDDLE POTENTIAL Vp
25
SWn1
SWn2
SW11
SW12
CLK
DAT
LP
V0~Vn
SP1
SP2
Sn
S1

FIG.10

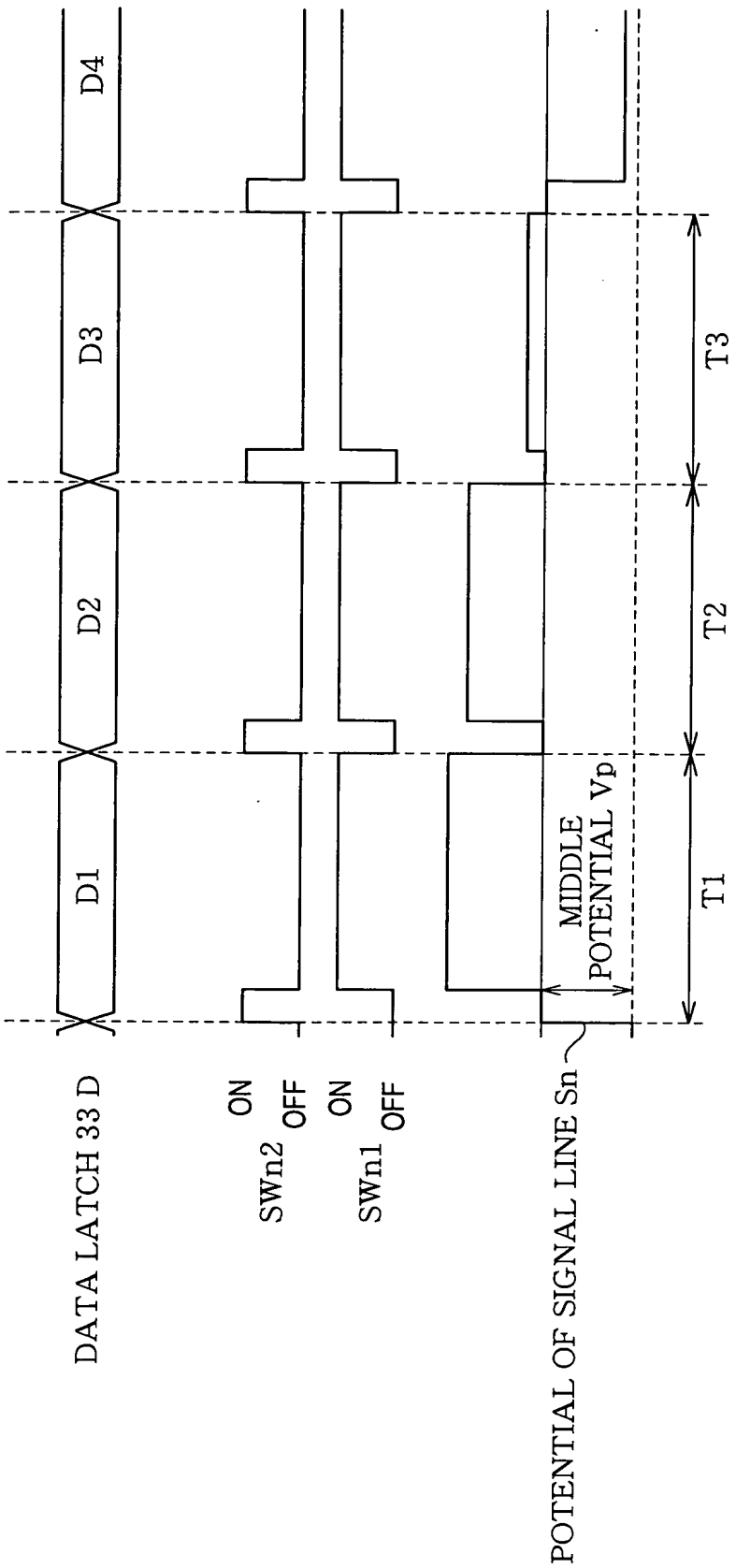

D4
D3
D2
D1
T3
T2
T1
MIDDLE POTENTIAL Vp
DATA LATCH 33 D
ON
OFF
SWn2
ON
OFF
SWn1
POTENTIAL OF SIGNAL LINE Sn

FIG.11